

Atty Dkt SWMC-001  
March 22, 2000

What is claimed is:

1. A composition, comprising:  
an excipient carrier material; and  
an active ingredient characterized by specifically and selectively binding to a natural glycosaminoglycan so as to alter a normal interaction of the natural glycosaminoglycan.
2. The composition of claim 1, wherein the carrier material is a pharmaceutically acceptable carrier.
3. The composition of claim 1, wherein the active ingredient is characterized by inhibiting a normal function of the natural glycosaminoglycan.
4. The composition of claim 1, wherein the active ingredient is a peptide selected from the group consisting of peptides having SEQ ID NO: 1, 2, 3, 4 and 5 and peptides exhibiting sufficient homology with any peptide of SEQ ID NO: 1, 2, 3, 4 and 5 so as to present a structure which alters a normal interaction of the natural glycosaminoglycan.
5. The composition of claim 1, wherein the glycosaminoglycan is hyaluronic acid.
6. The composition of claim 1, wherein the active ingredient is a peptide having the motif ZZZXZZZ, wherein Z is an amino acid selected from the group consisting of aliphatic and polar aliphatic residues, and wherein X is any amino acid.
7. The composition of claim 1, wherein the excipient carrier material is a pharmaceutically acceptable injectable liquid.

Atty Dkt SWMC-001  
March 22, 2000

o. The composition of claim 1, wherein the excipient carrier material is topical ointment.

5 9. The composition of claim 1, wherein the excipient carrier material is a pharmaceutically acceptable carrier for oral dosage.

10 10. The composition of claim 1, wherein the active ingredient is a peptide comprising the amino acid sequence selected from the group consisting of SEQ ID NO:1 , SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, and conservation substitutions thereof.

11. A method for inhibiting cell migration, said method comprising administering a peptide which binds selectively to a glycosaminoglycan, wherein said glycosaminoglycan mediates cellular migration.

15 12. The method of claim 11, wherein the glycosaminoglycan is selected from the group consisting of: hyaluronic acid, chondroitin sulfate A, chondroitin sulfate C, dermatan sulfate, heparin, keratan sulfate, keratosulfate, chitin, chitosan 1, and chitosan 2.

20 13. The method of claim 11, wherein the peptide specifically binds to hyaluronic acid (HA), and wherein the peptide alters an HA-CD44 mediated migration.

14. The method of claim 11, wherein the peptide alters migration of immune cells.

25 15. A method for inhibiting an immune reaction, said method comprising administering a peptide which selectively binds hyaluronic acid.

16. The method of claim 15, wherein the immune reaction is cutaneous.

Atty Dkt SWMC-001  
March 22, 2000

17. The method of claim 15, wherein the peptide inhibits leukocyte infiltration.

18. The method of claim 15, wherein the peptide is comprised of an amino acid sequence selected from the group consisting of SEQ ID NO:1 , SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, and conservation substitutions thereof.

5 19. A method for identifying peptides that modulate carbohydrate-mediated interactions, said method comprising:

10 providing a carbohydrate substrate;  
incubating said carbohydrate with a phage-display library;  
adding an agent that neutralizes said carbohydrate; and  
eluting phage clones specifically bound to the carbohydrate substrate;

wherein said eluted phage clones specifically bind to said carbohydrate.

15 20. The method of claim 19, wherein the carbohydrate substrate is provided on a support surface, and wherein said eluted phage clones do not bind to said support surface.

20 21. The method of claim 20, wherein the carbohydrate is a glycosaminoglycan selected from the group consisting of: hyaluronic acid, chondroitin sulfate A, chondroitin sulfate C, dermatan sulfate, heparin, keratan sulfate, keratosulfate, chitin, chitosan 1, and chitosan 2.

22. The method of claim 20, wherein the support surface is polystyrene.

25 23. The method of claim 20, wherein the support surface is coated with a carrier molecule following coating with said carbohydrate substrate.

Atty Dkt SWMC-001  
March 22, 2000

24. The method of claim 23, wherein the carrier molecule is BSA.

25. A peptide characterized by its ability to modulate carbohydrate-mediated interactions, wherein said peptide is identified by the method of claim 19.

5